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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,278	04/19/2001	Gennadi Finkelshtain	2405/3	7886

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EXAMINER

WILLS, MONIQUE M

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/837,278	Applicant(s) FINKELSHTAIN ET AL.	
	Examiner Wills M Monique	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 38 is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Allowable Subject Matter

Claim 38 is allowable over the prior art of record, because the prior art does not teach or fairly suggest a method to regulate power output of a fuel cell comprising: providing a fuel with a viscosity; providing a layer with a permeability through which said fuel must diffuse; and adjusting said viscosity and the permeability to regulate a rate of diffusion of fuel to the anode.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 3-6, 9 14-35 & 36-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Finkelshtain et al. U.S. Patent 6,554,877.

The applied reference has a common assignment with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either

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by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Finkelshtain teaches an electrode for use in a fuel cell comprising a platinum and ruthenium catalyst, activated carbon substrate and hydrophilic carbon paper (claims 3,4,6 & 9; col. 5, lines 45-55). The electrode is employed in a fuel cell having the following: a fuel composition 24 contained within fuel chamber 22; an anode 20 having said catalyst and control layers, wherein the anode layer is in contact with the fuel composition contained within the fuel chamber; and cathode 14 in contact with and acts as barrier against leakage of electrolyte 16 (claims 14 & 35). The fuel cell also includes a switch 30 to selectively block and unblock flow from the fuel chamber to the anode (claim 36; col. 5, lines 59-68). The electrolyte is a proton exchange membrane (claim 16; col. 6, lines 10-20) or a 6M KOH solution (claims 18-23; col. 5, lines 40-55). The electrolyte is configured to transport ions from the anode to the cathode (claims 15,17col. 6, lines 1-7). The fuel composition used in the fuel cell comprises methanol (claims 31-32; col. 6, lines 50-60), an electrolyte of 6 M KOH solution (claims 25-30; col. 6, lines 50-60) and optionally, ethylene glycol or glycerin (claim 34; col. 7, lines 20-30). The Examiner would like to point out that the ethylene glycol and glycerin are viscosity-controlling components (claims 33-34). Concerning claim 5, Finkelshtain teaches the employment of the same palladium catalyst as the subject invention therefore, the Examiner takes the position that the catalyst is inherently configured to catalyze

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oxidation reactions. With respect to claims 24 & 37, the fuel of Finkelshtain has the same composition as Applicants therefore, the Examiner takes the position that the exhaust gases produced in the fuel cell are inherently soluble in the fuel composition. The limitation in claim 1, with respect to the gas diffusion control layer, is considered to be an inherent property of the electrode as set forth in the prior art, because Finkelshtain employs the same carbon material set forth by Applicant to function as the diffusion control layer. Therefore, the instant claims are anticipated by Finkelshtain.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1& 3-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Finkelshtain et al. U.S. Pub. 2002/0076602.

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The applied reference has a common assignment with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Finkelshtain teaches an electrode comprising a Pt/Rh catalyst layer coated on a carbon support diffusion control layer (claims 1, 3, 4 & 6 ; ¶95 & 101). The Pt catalyst is configured to catalyze oxidation reactions (claim 5; ¶6). The catalyst layer may be supported by a nickel mesh conductive substrate (claims 7 & 8 ; Example 1). Therefore, the instant claims are anticipated by Finkelshtain.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1, 3, 5, 6, 9-11 & 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Inoue U.S. Patent 6,489,051.

Inoue teaches an electrode comprising a carbon fiber paper supporting a platinum catalyst (claims 1 & 9; col. 3, lines 20-60, claim 3). The electrode is employed in a fuel cell comprising a fuel composition contained within a fuel chamber (col. 4, lines 1-5 and Fig. 1); an anode having a catalytic layer and a diffusion control layer, said diffusion control layer interposed between said fuel chamber and said catalytic layer and in contact with said catalytic layer ; and a cathode (col. 3, lines 30-55, Fig. 1), addressing claims 14-17. The carbon paper is treated with polyvinyl alcohol (claims 10-11). The platinum catalyst is supported by layers of carbon powder (claim 6). Inoue teaches the employment of the same palladium catalyst as the subject invention therefore, the Examiner takes the position that the catalyst is inherently configured to catalyze oxidation reactions (claim 5). The limitation in claim 10, with respect to hydrophilicity of the carbon support, is considered to be an inherent property of the electrode as set forth in the prior art, because Inoue employs the same polyvinyl alcohol material set forth by Applicant to impart hydrophilicity. Therefore, the instant claims are anticipated by Inoue.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 & 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Allen et al. U.S. Patent 5,300,206.

Allen teaches a gas diffusion electrode comprising a catalyst layer and a microporous film in contact with said catalyst layer (col. 4, lines 1-15). Therefore, the instant claims are anticipated by Allen.

2. Claims 1 & 12 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 19544323, Published June 5, 1997.

The reference teaches a gas diffusion electrode for a polymer electrolyte membrane fuel cell comprising a carbon fiber fleece diffusion layer contacting a catalytically active layer. See abstract. Therefore, the instant claims are anticipated by DE 19544323.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finkelshtain et al. U.S. Patent 6,554,877, as applied to claim 1 above.

Finkelshtain substantially teaches the subject invention with the exception of supplying a second diffusion control layer on the catalytic layer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add an additional diffusion control layer to the catalyst, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. When employing multiple electrodes that are adjacent to each other, the catalyst layer of the bottom electrode will be circumscribed by two diffusion control layers; therefore, providing a catalyst layer sandwiched between a first and second diffusion control layer as necessitated by the instant claim.

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Conclusions

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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